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ABSTRACT

Research on job demands and worker health has demonstrated that physicians report the highest workloads, greatest responsibility for people, and the highest levels of job complexity. There is increasing evidence that emotional distress is an occupational hazard for physicians. Measures exploring the relationships between occupational stress, social support, locus of control, and depression were administered to a group of 210 family physicians. The results indicated that occupational stress exerted a direct effect on depression. This relationship was moderated directly by family social and emotional support and indirectly by the influence of locus of control on family social support. Support from peers was not significantly related to depression. The findings suggest that individuals with a strong sense of personal control also possess beneficial support systems in the presence of stressful situations. (Author/NRB)

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# Occupational Stress, Social Support and Mental Health

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ABSTRACT

A model of occupational stress, social support, locus of control, and depression among family physicians was developed. Two-hundred and ten family physicians were administered measures of occupational stress, social support, locus of control and depression. The hypothesized model was evaluated using structural equation models (LISREL). Results indicate that occupational stress exerts a direct effect on depression. This relationship is moderated directly by family social and emotional support and indirectly by the influence of locus of control on family social support. Support from peers was not significantly related to depression. Findings suggest that individuals with a strong sense of personal control also possess beneficial support systems in the presence of stressful situations.

The purpose of this paper is to develop and test a hypothesized model of the relationships between occupational stress, social support, locus of control, and depression in a sample of practicing family physicians. Family physicians were selected for study in part because of the particular characteristics of their occupation. Research on job demands and worker health by Caplan, Cobb, French, Van Harrison, and Pinnean (1975) demonstrated that physicians report the highest workloads, the greatest responsibility for people, and the highest levels of job complexity. There is increasing evidence that emotional distress is an occupational hazard for physicians (Cartwright, 1979; Krakowski, 1982; May, Revicki, & Jones, 1983; McCue, 1982).

The correlation between psychosocial stress and mental health, although dependable, is typically small (Dohrenwend & Dohrenwend, 1974; Rabkin & Struening, 1976). Stress occurs when environmental or internal demands exceed the adaptive resources of an individual (Lazarus, 1966; Lazarus & Launier, 1978). Research in the field of psychosocial stress (e.g., French, Rogers, & Cobb, 1974; Kahn, 1970; McGrath, 1970) indicate that many occupational settings are potentially stressful. McCue (1982) emphasizes that physicians daily encounter stresses that are an intrinsic part of medical practice. Working with intensely emotional aspects of patient care (e.g., suffering, fear, sexuality, death) and handling difficult patients, contributes to uncertainty within the boundaries of medical practice. Physicians in training and in practice are found to have rates of suicide, substance abuse, and psychiatric disorders that exceed the rate within the general population. Many physicians who are not seriously impaired are still troubled and dissatisfied with their work (Mawardi, 1979).

The small relationship between stress and mental health symptoms has stimulated researchers to conceptualize mediating variables in the relationship (Antonovsky, 1979; Cohen, 1979; Jenkins, 1979; Johnson & Sarason, 1978;

Kobasa, 1979; Lefcourt, 1980). Mediating variables under investigation include social support, personality characteristics, health status, and coping techniques. This study concerns the possible mediating effects of locus of control and social support.

Personality characteristics influence the cognitive appraisal of stressful events and actions directed toward these events. The personality characteristics most useful in decreasing the debilitating effects of stress are those that encourage optimistic cognitive appraisal and decisive interaction with the events, directed at ending their stressfulness (Kobasa, 1979; Lazarus, 1966). Locus of control has received increased attention as a possible mediating influence on the stress-illness relationship (Johnson & Sarason, 1978; Kobasa, 1979; 1982; Lefcourt, 1980). Locus of control refers to the belief in one's ability to influence events in the environment (Averill, 1973; Phares, 1976; Seligman, 1975). The importance of personal control is supported by recent theoretical developments regarding the hardy personality style by Kobasa and her colleagues (Kobasa 1979; 1982; Kobasa, Maddi, & Courington, 1981; Kobasa, Maddi, and Kahn, 1982). According to the hardy personality perspective, individuals who remain healthy in stressful situations possess an internal locus of control.

In a longitudinal design Kobasa (1979) found that executives with internal locus of control beliefs who experienced a large number of stressful life events reported less illness symptoms, than an similar group of executives without these beliefs. Johnson and Sarason (1978) measured stressful life events, locus of control, and illness symptoms in a group of college students. The students believing in an internal locus of control had a lower correlation between stressful life events and illness than those who believed in external control. These findings suggest that locus of control may be instrumental in modifying the relationship between stress and illness symptomology.

Many reviews of the health literature link social support with mental and physical health (Broadhead, Kaplan, James, Wagner, Schoenbach, Grimson, Heyden, Tibblin, & Gelbach, 1983; Cassell, 1976; Cobb, 1976; Wallston, Alagna, DeVellis, & DeVellis, 1983). Most models of the relationship propose that effective social support resources mitigate the effect of stress on the individual's mental and physical health. Cassel (1976) suggested that social support provided by the primary groups most important to an individual can buffer the individual from the physiological and psychological outcomes of exposure to the stressful situation. Despite differences in the definition and measurement of social support, numerous studies indicate that social support is negatively correlated with psychological impairment (Broadhead et al, 1983; Cassell, 1976; Cobb, 1976; Kaplan, Cassel, & Gore, 1977). There exists research evidence that social support modifies the effect of stress on mental health (Eaton, 1978; LaRocco, House, & French, 1980) and that social support has a direct, positive effect on psychological well-being (Anesheusel & Stone, 1982; Williams, Ware & Donald, 1981; Kaplan & Cassel, 1977).

The evidence concerning the relationship between occupational stress, social support, and health is not clear. Several studies found that social support does buffer the impact of psychosocial stress on illness (Cobb & Kasl, 1977; Eaton, 1978; House & Wells, 1973). Other research, however, failed to find a significant stress-buffering effect for social support measures (LaRocco & Jones, 1978; Lin, Simeone, Ensel & Kou, 1979; Pinnean, 1975). To clarify confusion in this area, LaRocco et al (1980) reviewed and reanalyzed data from several previously published studies of occupational stress and social support. Their results suggest a stress-buffering mechanism for social support in reducing depression, anxiety, and somatic symptoms. Social support was not found to mediate the effects of stress on job dissatisfaction, boredom, or dissatisfaction with workload.

In general, it appears important for studies of the relationship between occupational stress and mental health to include measures of locus of control and social support. In this paper a model of occupational stress, locus of control, social support, and depression is evaluated using a group of family physicians. The mediating influence of social support and perceived control in the stress-illness relationship can be determined. Figure 1 represents a hypothesized model of the relationship among these variables. In the model, perceived occupational stress leads to the development of depressive symptomology. Further, it is hypothesized that the stress-depression relationship is affected by peer and family social support and locus of control beliefs.

## METHOD

### Subjects

The subject pool for this study consisted of a stratified random sample of 320 of the 1264 members of the North Carolina Academy of Family Physicians (NCAFP) practicing in the community. The stratifying variables were physician age and practice geographic location. In April 1982, a composite survey questionnaire, accompanied by a letter delineating the nature of the study, was mailed to the 320 physicians. Included in the questionnaire were measures of occupational stress, depression, social support, and locus of control. The questionnaire was completed and returned to East Carolina University by 66% of the subject pool.

The average age of the 210 physicians in the sample was 48. The majority were male (93%), white (93%), and possessed residency training (64%). The average year of graduation from medical school was 1961, with a range from 1934 to 1981. The responding physicians reported seeing an average of 142 patients and working approximately 58 hours in a normal week. Sixty-five percent of the physicians reported that they were in practice for ten or more years. Years of practice ranged from one to 46 years. On a measure of self-rated health, 91% reported their health as good or excellent.

### Measures

A survey questionnaire was constructed to collect information concerning demographic characteristics, medical education, medical practice characteristics, occupational stress, depression, social support, and locus of control.

The Health Professional Stress Inventory (HPSI) developed by Revicki and May (Note 1) is a measure of the degree of occupational stress in physicians and other health professionals. Items were identified from a review of the

health professional occupational stress literature and developed from observations of physicians. The HPSI is a 18-item, four-point Likert scale in which respondents identify the extent to which a particular statement applies to them. There are three subscales: (a) Disengagement, (b) Productivity, and (c) Co-Worker relations. The disengagement factor reflects symptoms and behaviors associated with attempts at detachment from the work situation. Co-worker relations represents the perception of the interpersonal relations in the occupational setting. Productivity reflects perceived evaluation of work and professional activities. Internal consistency reliability coefficients for the subscales range from .71 to .87. Previous investigation indicated that the instrument possess acceptable construct validity (May et al, 1983; Revicki & May, Note 1; 1983).

The Self-Rating Depression Scale (SRDS) was used to measure depression (Zung, 1965; Zung, 1967). The SRDS is a diagnostic tool assessing twenty commonly agreed upon symptoms of depression and has been used extensively in studies of depression in general populations. Locus of control is a personality construct which refers to the extent to which individuals believe that they influence their life events or exert personal control over their experience. The Internal-External Locus of Control (LOC) scale (Rotter, Seeman & Liverant, 1962), was used in the present study to measure personal control. Considerable research has demonstrated that this scale is a reliable and valid index of belief in whether one is controlled by external forces (e.g., Phares, 1976).

The final section of the questionnaire consisted of social support items derived or modified from the Family Inventory of Resources for Management (FIRM) (McCubbin & Patterson, 1981). The modified FIRM is designed to measure two characteristics of family support: (a) esteem and communication (FEC) and (b) mastery and health (FMH). For the purpose of the present study, an index

of peer social support (PEER) was developed. The internal consistency reliability coefficients for the FEC was .77, for the FMH .87, and .73 for PEER.

Data Analysis

Multivariate analysis with latent variables, or more specifically, linear structural equation models with latent variables (Bentler, 1980; Duncan, 1975; Joreskog, 1978) were used to statistically treat the data. Latent variables are hypothetical constructs developed by a researcher to understand a research area. In general, no operational method exists for directly measuring these constructs. The latent variables are related to one another in particular ways as specified by theory. When the relations among all constructs and relation of all constructs to measured variables are specified in mathematical form (e.g., a simultaneous system of highly restricted linear regression equations), one obtains a model possessing a certain structural form and unknown parameters (Bentler, 1980). The model attempts to explain the statistical properties of the measured variables in terms of the hypothesized latent variables.

For structural equation models the major statistical problem is optimally estimating the model parameters and determining the goodness of fit of the model to sample data. A model that does not acceptably fit the observed data is rejected as a plausible candidate for the causal structure underlying the observed variables. If a model cannot be rejected statistically, then it may be a possible representation of the causal structure (Bentler, 1980). The word "cause" in this context merely represents a shorthand designation for a hypothesized unobserved process. For further explanation of structural equation models, the interested reader is referred to Bentler (1980), Bentler and Weeks (1982), and Duncan (1975).

Following model specification and data collection, it is necessary to compare the hypothesized model to data. Generally, only the variances and covariances are used. The unknown parameters of the model are estimated so as to make the variances and covariances that are reproduced from the model nearly similar to the observed data (Bentler, 1980). The better the model the closer approximation to the data.

In the present study, LISREL (Joreskog, 1978; Joreskog & Sorbom, 1981) was used to estimate the parameters of the model and determine goodness of fit of the model to the data. LISREL uses the maximum likelihood method of estimation to derive the model parameters. There are two sets of parameters contained in the LISREL analysis, the measurement model and the structural model. The measurement model represents the relations between the measured variables and the latent variables. The structural model specifies the relationships between the latent variables.

The LISREL program provides a chi-squared ($\chi^2$) value to evaluate the goodness of fit of the model to data, parameter estimates, and standard errors which reflect the sampling variability of each parameter estimate. The $\chi^2$ statistic gives a test of the proposed model against the alternative that the measured variables are arbitrarily correlated. Therefore, if the $\chi^2$ is small compared to the degrees of freedom, it is concluded that the model provides a plausible representation of the underlying causal structure of the data. The standard error associated with each parameter estimate is used to provide an indication of the importance of the parameter to the model.

## RESULTS

The correlation matrix, means, and standard deviations for the variables included in the structural equation model are contained in Table 1. The structural model relating occupational stress, locus of control, social support, and depression is depicted in Figure 1.

Table 1

The measurement model parameters in Table 2 represent factor loadings and error variances. The factor loadings represent standardized regression weights for predicting observed variables from latent constructs. Each error variance represents the variance that a variable does not share with other measured variables. The factor loadings are high and the error variances are generally moderate in size. Therefore, it can be concluded that the latent constructs are measured with an adequate degree of precision and the observed variables are reasonable indicators of these factors. The remaining latent variables (i.e., locus of control, peer support, depression) are constrained to be equivalent to their respective measured variables.

Table 2

Overall the hypothesized structural model appears to adequately represent the relationships between occupational stress, social support, locus of control and self-rated depression in this sample of family physicians. The $\chi^2$ goodness of fit test equals 36.54 with 28 degrees of freedom ($p=.13$). The nonsignificant $\chi^2$ indicates that the specified structural model accurately represents the underlying relationships present in the data. The structural model may be written in the form of a set of structural equations (Duncan, 1975; Land, 1969). The standardized structural coefficients and multiple correlation coefficients associated with each structural equation are included

in Table 3. In several instances, a variable was retained in the model even though its coefficient failed to exceed twice its standard error. These variables were included in light of their demonstrated importance in other previous research. The omission of such variables from the equation may lead to biased estimates of the coefficients of the remaining variables. Figure 1 contains a path diagram with the estimated structural parameters included.

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Figure 1

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Age is significantly related to peer support, locus of control, and depression in the model. Older physicians possess more supportive peer relationships than their younger colleagues. Older physicians are more likely to report symptoms of depression.

The model indicates that older family physicians felt more personal control over their general environment than the younger physicians. The older physicicans, because they experience more practice experience, may be more acclimated and perceive that they have more control over their work environment than the younger physicians. Most older physicians have established practices and may have through experience developed methods for reducing the stress inherent to medical practice. Locus of control has opposite effects on occupational stress and family support. Physicians expressing external control beliefs are more likely to report occupational stress and are less likely to have a supportative family environment. Individuals with internal control beliefs have more family support than persons with external control beliefs. There is a small, significant positive relationship between external locus of control and depression.

Occupational stress is significantly related to symptoms of depression. Those physicians with high occupational stress report more depressive symptomology than physicians with low occupational stress. Although occupational stress exerts a significant, negative effect on both family support and peer support, the latter is not significantly related to depression. Family social support is negatively related to depression. The physicians with supportive family environments are less likely to report depressive symptoms than physicians with less supportive family environments. Peer social support is correlated with family social support. No causal relationship between peer and family support is specified in the model.

There is evidence for a complex inter-relationship between occupational stress, locus of control, family support, and depression. These relationships may be more clearly explicated when the direct, indirect, and total effects of the model variables on depression are reviewed. A direct effect is considered as that part of one variable's total effect which is not transmitted via intervening variables. In other words, the direct effect is the effect that remains when intervening variables are held constant. Indirect effects are the part of a variable's total effect which is mediated by variables specified as intervening between that variable and the dependent variable. Indirect effects inform the investigator how much of a given effect occurs because manipulation of an antecedent variable leads to changes in other variables which in turn change a consequent variable (Alwin & Hauser, 1975). The total effect tells the researcher the quantity of change in a consequent variable is induced by a given alteration in an antecedent variable, irrespective of the change mechanism. The interested reader is referred to Duncan (1975) and Alwin and Hauser (1975) for further information on the decomposition of effects in structural equation models.

Table 4 contains information on the total direct and indirect effect of occupational stress, locus of control, peer support, and family support on depression in the structural model. Occupational stress exerts a direct effect of .17 and an indirect effect of .13 on depression. Most of this indirect effect is mediated by family support. Family support appears to modify the effects of occupational stress on depression. The direct influence of family social support on depression is substantial. The results suggest that social and emotional support provided by family members significantly reduces the effect of occupational stress on depression.

Locus of control directly affects depression. There is evidence that it may modify the effect of occupational stress on depression indirectly through family support. In addition, external locus of control exerts a direct effect on family support and an indirect effect on family support via occupational stress equal to -.06. Locus of control has a direct effect of .14 on depression and indirect effect through family support of .22. Individuals with a sense of personal control appear to possess strong family support syustems under conditions of stress. Internal perceived control beliefs appear to provide the individual with an important protective factor for coping with stressful situations.

## Discussion

The results confirm the structural model hypothesized in this study. Specifically, occupational stress exerts a direct influence on development of depressive symptoms. This relationship is moderated directly by family social and emotional support and indirectly by the influence of locus of control on family social support. Family support significantly reduces the impact of occupational stress on depression, while the locus of control moderates the

perception of stress. These findings suggest that individuals with a strong sense of personal control mobilize their support system in the presence of stressful situations.

There are several caveats that must be noted regarding the structural model analyzed. The most serious concerns the cross-sectional nature of the data. We have assumed, like many researchers in this area, that there is a definite causal sequence in which stress leads to depression and its impact is modified by social support (which also has a direct effect on depression). Locus of control is viewed as a modifier of stress and social support in the model. There are other possible alternative explanations for the observed relationships among these variables. A social selection model would hypothesize causal effects operating in the reverse direction. Existing psychological impairment may result in the occurrance of stressful events and alter sources of support. It is not possible using cross-sectional data to determine the direction of hypothesized causal effects. More likely there exist reciprocal causal relations which are impossible to disentangle without longitudinal prospective data.

Second, the measures used in the study are all obtained by physician self-report and may reflect bias in reporting and contamination of the different model variables. It is likely that physicians knowledgable in depressive symptomology may under report the extent of depressive symptoms. We believe that this may not be the case in this study since 5% of the physicians reported symptoms in the clinically depressed range according to the Zung SRDS and 30% reported symptoms consistent with the mildly to moderately depressed range. These proportions are comparable to those found in studies of depression in the general population (Boyd & Weissman, 1980; 1982).

Consistent with previous research (Dohrenwend & Dohrenwend, 1974; LaRocco et al, 1980; Lin et al, 1979; McGrath, 1970; Rabkin & Struening, 1976; Williams et al, 1981), the relationship between occupational stress and mental health was small. Self reported depression was directly influenced by occupational stress. It appears that as occupational stress increases, there is a concomittant increase in depression. Although only 5% of the physicians in the sample reported clinical levels of depression, approximately 30% indicated that they experienced symptoms within a subclinical range.

Perceived social support originating from family members moderated the influence of occupational stress on depression. This finding is consistent with much of the literature concerning the efficacy of social support in moderating the impact of psychosocial stress on physical and mental health (Broadhead et al, 1983; Cassel, 1976; Cobb, 1976; Cobb & Kasl, 1977; Eaton, 1978; Gore, 1978; House & Wells, 1978; LaRocco et al, 1980; Wallston et al, 1983). A number of studies have found that social support was positively related to health, but have failed to find significant stress-buffering effects of support (Andrews et al, 1978; LaRocco & Jones, 1978; Linn et al, 1979; Pinneau, 1975). In the present study, about half of the total effect of occupational stress on depression is moderated by family support resources. In addition, social support has a direct protective effect on the mental health measure.

Contrary to expectations, peer social support was not significantly related to depression and did not moderate the relationship between occupational stress and depression. Previous research by Caplan (1972), Cobb and Kasl (1977), Gore (1978), and LaRocco et al (1980) found that supervisor and co-worker support moderate the effects of occupational stress on physical and mental health. Except for the work of LaRocco et al (1980), the research

reported involves industrial and other blue collar workers. The LaRocco et al study did include some white collar workers but few physicians. The lack of significant relationships among peer support, occupational stress, and depression in the present study may be due to the nature of physician's work. Most family physicians in private practice perform work activities independently with little interaction with other physicians even in group practice. The opportunities and availability for consistent, daily peer interaction are limited, perhaps causing family support to take precedence over co-worker or peer support.

Finally, there is evidence supporting a complex relationship among occupational stress, locus of control, social support, and depression. Physicians with a strong sense of personal control are more likely to have supportive family relationships. Personal control appears to be related to coping effectively with occupational stress. Individuals with a strong sense of personal control are more able, in the presence of stressful situations, to cope effectively than individuals without this characteristic. Individual characteristics interact with the social environment to produce behavioral coping styles. These coping styles may in turn interact reciprocally with the current social enironment to allow mobilization of social support (Broadhead et al, 1983). Physicians' response to occupational stress is shaped by personal characteristics and these personal characteristics influence their ability to cope with stressful situations.

The role of personal attributes in helping individuals deal with life stress has been given increasing attention (Antonovsky, 1979; Cohen, 1979;) The importance of personal control in the present study is supported by the hardy personality theory developed by Kobasa (Kobasa, 1979; 1982; Kobasa, et al, 1981; Kobasa, et al, 1982). According to Kobasa, persons who remain

healthy in stressful situations have a greater sense of control. Kobasa (1979) found that locus of control significantly differentiated between high stress-low illness and high-stress-high illness executives. A study by Johnson and Sarason (1978) found that locus of control orientation was a moderator variable in the relationship between negative life events and depression. The effects of life stress may be mediated by the degree to which individuals perceive themselves as having personal control over events (Johnson & Sarason, 1978). The present study adds further supporting evidence for the role of preceived control as a moderator of stress.

In conclusion, this study found that occupational stress among physicians impacts directly on depression. This relationship is moderated directly by family support and indirectly by the influence of locus of control on stress and family social support. The recognition of this complex relationship between social support and locus of control and their influence on mental health appears to bridge two prior areas of independent research. Previous study has focused on the findings for and against the efficacy of social support on physical and mental health (Broadhead et al, 1983; Cassel, 1976; House & Wells, 1978; LaRocco et al, 1980; Wallston et al, 1983). A parallel body of studies have cited the influence of personality attributes on stress and illness (Antonovsky, 1979; Johnson & Sarason, 1978; Kobasa, 1982; Lefcourt, 1980). By investigating the relationship of both social support and perceived control on occupational stress a clearer understanding of this interaction has emerged. Locus of control was directly related to mental health. In addition, an indirect relationship was found suggesting that individuals with an internal locus of control may cognitively appraise stressful events and act directly toward these events in ways that enable

them to more effectively cope with these stressful events. An especially potent ameliorating action may be to mobilize their social support resources to help moderate occupational stress.

Future investigation of occupational stress should continue to delineate the relationship between locus of control and social support and their effect on physical and emotional health. By focusing on this critical interaction can we increase our understanding of the complexity of social and psychological influences on health and illness. Accordingly, future research should employ both social support and personality measures to further the findings reported in this study. Longitudinal multivariate research designs are needed to disentangle the causal mediating influences of social support and perceived control on the stress-illness relationship. Using structural equation models it may be possible to hypothesize and statistically evaluate alternative theoretical models involving the stress-illness relationship. It is also recommended that future studies utilize both blue and white collar occupations to cross-validate the structural model proposed in this paper. This recommendation particularly applies to the effects of occupational stress on other health care professionals such as nurses and allied health personnel.

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Table 1. Correlation matrix, means and standard deviations for the measured variables in the model of occupational stress, social support, and depression

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|
| 1. Disengagement | 1.0 | | | | | | | | |
| 2. Productivity | .60 | 1.0 | | | | | | | |
| 3. Co-Worker Relations | .69 | .55 | 1.0 | | | | | | |
| 4. Locus of Control | .18 | .13 | .22 | 1.0 | | | | | |
| 5. Peer Support | -.22 | -.17 | -.19 | -.28 | 1.0 | | | | |
| 6. Family Mastery & Health | -.37 | -.28 | -.20 | -.49 | .47 | 1.0 | | | |
| 7. Family Esteem & Communication | -.20 | -.20 | -.18 | -.34 | .46 | .57 | 1.0 | | |
| 8. Age | -.11 | .25 | -.04 | -.28 | .32 | .20 | .13 | 1.0 | |
| 9. Depression | .36 | .37 | .20 | .39 | -.32 | -.56 | -.49 | -.02 | 1.0 |
| Mean | 15.5 | 8.0 | 10.1 | 7.1 | 8.7 | 28.2 | 22.6 | 48.1 | 32.7 |
| SD | 5.1 | 3.0 | 4.2 | 4.5 | 1.9 | 6.6 | 3.5 | 12.6 | 6.5 |

Table 2. Factor loadings for the occupational stress and family support latent constructs

| | Occupational Stress | |
|---|---|---|
| | Factor Loading | Error Variance |
| Disengagement | .89 | .20 |
| Productivity | .69 | .53 |
| Co-Worker Relations | .77 | .40 |
| | **Family Support** | |
| | Factor Loading | Error Variance |
| Family Mastery and Health | .95 | .09 |
| Family Esteem and Communication | .59 | .65 |

Table 3. Standardized structural coefficients for the model of occupational stress, social support and depression

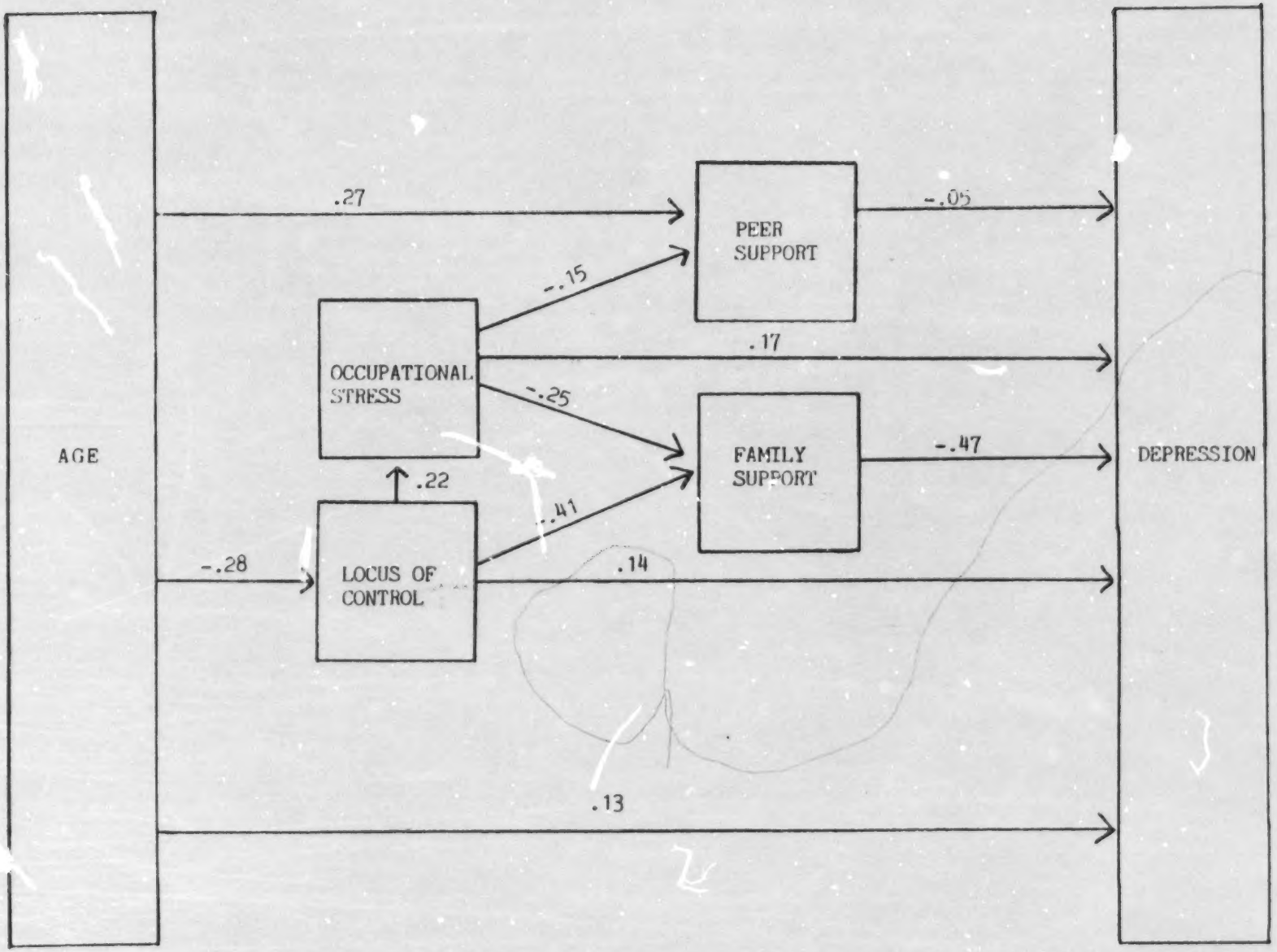
| Independent Variables | Dependent Variables: Locus of Control | Occupational Stress | Peer Support | Family Support | Depression |
|---|---|---|---|---|---|
| Locus of Control | - | .22* | - | -.41* | .14* |
| Occupational Stress | - | - | -.15* | -.25* | .17* |
| Peer Support | - | - | - | .22* | -.05 |
| Family Support | - | - | .22* | - | -.47* |
| Age | -.28* | - | .27* | - | .13 |
| $R^2$ | .08 | .05 | .27 | .45 | .41 |

* $p < .05$

Table 4. Interpretation of effects for the model of occupational stress

| Dependent Variable | Independent Variable | Total Effect | Indirect effects via Occupational Stress | Indirect effects via Locus of Control | Indirect effects via Peer Support | Indirect effects via Family Support | Direct Effects |
|---|---|---|---|---|---|---|---|
| Depression | Occupational Stress | .30 | --- | --- | .01 | .12 | .17 |
| | Locus of Control | .40 | .04 | --- | .00 | .22 | .14 |
| | Peer Support | -.15 | --- | --- | --- | -.10 | -.05 |
| | Family Support | -.48 | --- | --- | -.01 | --- | -.47 |
| | Age | .01 | --- | -.11 | -.01 | --- | .13 |

Figure 1. Path diagram for the model of occupational stress, social support and depression


AGE
.27
PEER SUPPORT
-.05
-.15
OCCUPATIONAL STRESS
.17
-.25
FAMILY SUPPORT
-.47
DEPRESSION
.22
.41
-.28
LOCUS OF CONTROL
.14
.13